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09/542,562	04/04/2000	CESAR BANDERA	ML-0495CV	5137

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EXAMINER

HENN, TIMOTHY J

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 11/10/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

09/542,562

Applicant(s)

BANDERA ET AL.

Examiner

Timothy J Henn

Art Unit

2612

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 04 April 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-23 is/are rejected.
- 7) ☒ Claim(s) ~~1-23~~ 1-23 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 April 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 24.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

## **DETAILED ACTION**

### ***Specification***

1. The disclosure is objected to because of the following informalities:
  - i. On page 3, Lines 1-2: Replace "circuitry is describes that" with "circuitry is described that".
  - ii. On Page 10, Line 1: Replace "frame, is controlled in" with "frame, are controlled in".
  - iii. On Page 11, Line 32: "11" should in bold.

Appropriate correction is required.

### ***Claim Objections***

2. Claims 7, 10 and 22 are objected to because of the following informalities:
  - i. In regard to claim 7, remove the second "." at the end.
  - ii. In regard to claim 10, "arrays" should be changed to "array's".
  - ii. In regard to claim 22, "Identify" should not be capitalized.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

Art Unit: 2612

4. Claims 1-4, 6, 9-13, 16-17 and 20-23 are rejected under 35 U.S.C. 102(a) as being anticipated by Yang et al.

**[claim 1]**

5. In regard to claim 1, note that Yang et al. discloses a vision system for imaging a scene using a dynamically reconfigurable photodetector array comprising a video camera having at least one reconfigurable photodetector array capable of imaging a scene (Page 1+, "Introduction" Section), means for controlling characteristics of imaging by said photodetector (Page 4+, "Variable-resolution ROI Generation Circuits" and "Column-control Circuits" Sections), and a computer system or "off-chip processor" for receiving signals from said photodetector array representing the scene imaged by said photodetector array and sending signals to said controlling means to configure the characteristics of imaging by said photodetector (Page 2+, "Reconfigurable Foveal Vision System" Section) as claimed.

**[claim 2]**

6. In regard to claim 2, note that Yang et al. discloses a photodetector array which provides signals representing a frame with one or more windows having pixels (Page 4+, "Variable-resolution ROI Generation Circuits" and "Column-control Circuits" Sections).

**[claim 3]**

7. In regard to claim 3, note that Yang et al. discloses a means for controlling the resolution of the pixels in each of said windows (Page 4+, "Variable-resolution ROI

Generation Circuits and "Column-control Circuits" Sections).

**[claim 4]**

8. In regard to claim 4, note that Yang et al. discloses a system wherein one or more of said windows overlap in said frame (Figure 1).

**[claim 6]**

9. In regard to claim 6, note that Yang et al. discloses a system wherein said controlling means represents a controller located on said photodetector array (Page 3+, "Imager Design and Operation" Section; Figure 8).

**[claim 9]**

10. In regard to claim <sup>9</sup>~~6~~, note that Yang et al. discloses a system wherein said computer system is separate from said video camera (Page 2+, "Reconfigurable Foveal Vision System" Section).

**[claim 10]**

11. In regard to claim 10, note that Yang et al. discloses a system wherein said computer system or "off-chip processor" sends signals to said controlling means representing window request commands that contain information used to dynamically reconfigure one or more of said photodetector array's imaging characteristics (Page 2+ "Reconfigurable Foveal Vision System" Section).

**[claim 11]**

12. In regard to claim 11, note that Yang et al. discloses a system wherein said characteristics represent spatial or "resolution" and temporal and "frame rate" parameters (Page 2+, "Reconfigurable Foveal vision System" and "Update Rate and

Noise" Sections).

**[claim 12]**

13. In regard to claim 12, note that Yang et al. discloses system wherein said photodetector array contains a plurality of individual pixels that have fixed dimensions (Page 3+, "Imager Design and Operation" Section).

**[claim 13]**

14. In regard to claim 13, note that Yang et al. discloses a system wherein said photodetector array represents a complementary metal oxide semiconductor photodetector array responsive to radiation in the visible spectral range (Page 3+, "Imager Design and Operation" Section).

**[claim 16]**

15. In regard to claim 16, note that Yang et al. discloses a system wherein said computer system and said video camera are part of a closed-loop interactive system (Page 2+, "Reconfigurable Vision System").

**[claim 17]**

16. In regard to claim 17, note that Yang et al. discloses a system wherein said computer system or "off-chip processor" is capable of analyzing video imagery for target objects and determining the necessary position, size, shape, resolution and frame rate of multiple, overlapping windows within said vision system's field of view (Page 2+, "Reconfigurable Vision System", "Variable-resolution ROI Generation Circuits" Sections; Figure 1).

**[claim 20]**

Art Unit: 2612

17. In regard to claim 20, note that Yang et al. discloses a system wherein said computer system or "off-chip processor" further comprises means for generating a window request command to said video camera identifying said characteristics (Page 2+, "Reconfigurable Foveal Vision System").

**[claim 21]**

18. In regard to claim 21, note that Yang et al. discloses a system wherein said computer system further comprises means for generating a window request command to said video camera identifying said characteristics, in which said characteristics represents any of position, size, shape, resolution, frame rate and spectral content of multiple windows (Page 2+, "Reconfigurable Foveal Vision System").

**[claim 22]**

19. In regard to claim 22, note that Yang et al. discloses a method of tracking objects in a scene comprising a frame of windows comprising the steps of locating at least one object to be tracked in one of said windows in a low resolution, forming one or more windows having said object in a high resolution (Page 2+, "Reconfigurable Vision System") and identifying said object in said windows of said high resolution (Page 1+, "Introduction").

**[claim 23]**

20. In regard to claim 23, note that Yang et al. discloses a method of tracking objects in a scene comprising a frame of windows wherein a plurality of said windows of high resolution are formed corresponding to the number of targets in the scene (Page 2+, "Reconfigurable Foveal Vision System"; Figure 1).

***Claim Rejections - 35 USC § 103***

21. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

22. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. in view of Yoshimura et al. (US 6,556,241).

**[claim 5]**

23. In regard to claim 5, Yang et al. discloses a system, which meets the requirements as set forth in claim 1 as discussed above. Therefore, it can be seen that Yang et al. lacks a system, which further comprises a client-server interface between said computer system and said controlling means. Yoshimura et al. discloses a remote-controlled camera picture broadcast system in which a client-server interface exists between a client computer and the camera controller so that users can control the camera system from a remote location (Abstract). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the remote control of Yoshimura et al. with the system of Yang et al. to allow a client-server relationship between the computer system and the controlling means so that the camera can be controlled remotely.



Art Unit: 2612

24. Claims 7, 8 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al.

**[claim 7]**

25. In regard to claim 7, Yang et al. discloses a system, which meets the requirements as set forth in claim 1 as discussed above. Therefore, it can be seen that Yang et al. lacks a system in which said controlling means represents a logic device separate from said photodetector array. However, it is well known in the electronics art that control circuitry can be either integrated on the same chip or made separate as a different chip so long as the two chips remain in electrical contact with each other (Official Notice). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to move the control circuitry for the photodetector array onto a separate chip in order to be able to replace one device without the added cost of replacing the other.

**[claim 8]**

26. In regard to claim 8, Yang et al. discloses a system, which meets the requirements as set forth in claim 1 as discussed above. Therefore, it can be seen that Yang et al. lacks a system wherein said computer system is integrated into said video camera. However, it is well known in the electronics art that computer systems (i.e. microprocessors, microcontrollers, DSP, etc..) can be either integrated in the same housing as a video camera, or can be made external to the device (Official Notice). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to integrate the computer system and the video camera in the

same housing in order to create a smaller device.

**[claim 19]**

27. In regard to claim 19, Yang et al. discloses a system, which meets the requirements as set forth in claim 2 as discussed above. Therefore, it can be seen that Yang et al. lacks a system wherein said computer system further comprises a user interface enabling a human operator to analyze video imagery for target objects and determine the necessary position, size, shape, resolution, frame rate and spectral content of multiple windows within said visions system's field of view. However, it is well known in the image recognition art that computer artificial intelligence is not as good as human intelligence when it comes to determining complex patterns in images (Official Notice). Therefore, It would have been obvious to one of ordinary skill in the art at the time the invention was made to use a human being to analyze video imagery for target objects as claimed to avoid false negatives and false positives in object tracking determinations.

28. Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. in view of Kimata (US 5,095,211).

**[claim 14]**

29. In regard to claim 14, Yang et al. discloses a system, which meets the requirements as set forth in claim 1 as discussed above. Therefore, it can be seen that Yang et al. lacks a system wherein said photodetector array represents a device responsive to infrared wavelengths. Kimata discloses an infrared image sensor, which

Art Unit: 2612

is responsive to infrared wavelengths, and thereby capable of detecting objects that conventional visible light image sensors may miss. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the infrared image sensor of Kimata with the system of Yang et al. so as to detect objects using infrared which conventional visible light image sensors may miss.

30. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al. in view of Fossum et al (US 5,236,871).

**[claim 15]**

31. In regard to claim 15, Yang et al. discloses a system, which meets the requirements as set forth in claim 1 as discussed above. Therefore, it can be seen that Yang et al. lacks a system wherein said photodetector array is bonded to a complementary metal oxide semiconductor read-out integrated circuit. Fossum et al. teaches a photodetector array which is bonded onto an integrated read-out circuit so as to use the proper material for optimum performance of the photodetector and read-out circuit individually (Abstract; Figure 5), it is also noted that Fossum et al. uses a CMOS circuit for their read-out circuit (Column 5, Lines 12-22). It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the photodetector array of Fossum et al. to be able to individually choose the proper material for both the photodetector array and read-out circuit.

Art Unit: 2612

32. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yang et al in view of Chao et al. (US 5,216,484).

**[claim 18]**

33. In regard to claim 18, Yang et al. discloses a system, which meets the requirements as set forth in claim 1 as discussed above. Therefore, it can be seen that Yang et al. lacks a system wherein said computer system is capable of determining the spectral signatures of said target object. Chao et al. discloses a real-time imaging spectrometer with an image sensor and computer which is capable of determining spectral signatures of objects for the purpose of remote observation and sorting of materials (Column 3, Lines 55-60; Figure 1). It would have been obvious to one of ordinary skill in the art at the time the invention was made to combine the functionality of Chao et al. with the image sensor and computer system of Yang et al. to allow Yang et al. to determine spectral signatures for the purpose of remote observation and sorting of materials.

***Conclusion***

34. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following prior art further shows the current state of the art in image sensor pixel averaging:

a. McDaniel et al.

US 4,996,413

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Timothy J Henn whose telephone number is (703) 305-8327. The examiner can normally be reached on M-F 7:30 AM - 5:00 PM, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy R Garber can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 305-3900.

TJH  
10-27-2003

  
NGOC-YEN VU  
PRIMARY EXAMINER